

Australites from the Kimberley region, Western Australia

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Abstract

The australite strewnfield, thought to be restricted to the region south of latitudes 24-25°S, has been shown by recent collections to extend to the Kimberley region of Western Australia. These collections include both normal and HMg (high-magnesium) australites.

Introduction

Chalmers *et al.* (1976), on the basis of their own field collecting and on published reports, proposed that the australite strewnfield was essentially restricted to the region south of latitudes 24° to 25°S. The few australites found north of this region were ascribed to specimens transported by man. However, since that publication intensive prospecting in the Kimberley region has resulted in the incidental recovery of australites in situations which appear to preclude human transport, and hence require a re-evaluation of the extent of the Australian strewnfield.

The King George River australites

A small collection of nine specimens from the King George River area was studied. These were collected in stream gravels and show typical abraded subspherical and lensoid forms. Weight information is provided in Table 1, along with specific gravity (S.G.), refractive index (R. I.), and microprobe analyses. The microprobe analyses were made at the Smithsonian Institution, with a synthetic glass of approximate tektite composition as a standard (Mason 1979, p. 15-16).

The analyses all fall within the range of australite compositions established by Taylor (1962), Taylor and Sachs (1964), Chapman and Scheiber (1969), Chapman (1971), and Mason (1979). In terms of the Chapman (1971) classification of tektites, most of these specimens fall in his "normal" group ($\text{CaO} > \text{MgO}$, $\text{Na}_2\text{O} > 1.25\%$),

which includes practically all the analysed australites from Western Australia and the extension of the Nullarbor Plain into South Australia. DY3, MF2, and MF4 are included in the normal group, although their Na_2O contents are less than 1.25%. Two specimens, DRY2 and DRY3, belong to Chapman's HMg (high-magnesium) group, otherwise concentrated in the Lake Wilson—Mount Davies area near the Western Australia—Northern Territory—South Australia border region.

Previous records of australites from the Kimberley region

Cleverly and Dortch (1975) recorded the recovery of six australites from archaeological sites in the Ord Valley, within the area now largely inundated by Lake Argyle. They considered the possibility that they were the result of a natural fall in that region, but thought it more likely that they were the result of long-range trade from southern regions.

Horwitz and Hudson (1977) analysed and described 12 tektites from northern Western Australia. Nine of these were from the Pilbara region and three from the Kimberley region (near 16°S, 129°E). Of these three, one is a normal australite, one a HMg australite, and the third they considered to be an indochinite, on the basis of low MgO and CaO contents of 1.27% and 1.50% respectively. However australites with similar low MgO and CaO contents are known (e.g. Mason, 1979, Table 1.

Table 1.
Analyses of King George River australites

	DF3	DY3	DR3	DRY2	DR2	DY2	DRY3	MF4	MF2
SiO ₂	71.5	71.9	72.0	72.2	73.5	74.2	74.7	75.6	77.3
Al ₂ O ₃	13.3	13.1	13.0	13.0	12.4	12.6	11.9	11.9	10.8
FeO	4.61	4.79	4.95	5.35	4.41	4.67	4.30	4.31	3.72
MgO	2.31	2.59	2.60	3.41	2.27	2.49	3.22	2.17	1.78
CaO	3.36	3.49	3.04	3.16	3.35	3.19	1.82	1.87	2.47
K ₂ O	2.38	2.33	2.37	1.90	2.28	2.28	1.71	1.96	2.11
Na ₂ O	1.37	1.22	1.40	1.10	1.30	1.34	0.81	0.85	1.16
TiO ₂	0.72	0.69	0.72	0.69	0.67	0.69	0.58	0.64	0.58
Sum	99.6	100.1	100.1	100.8	100.2	101.5	99.0	99.3	99.8
S.G.	2.453	2.463	2.462	2.463	2.435	2.443	2.435	2.416	2.400
R.I.	1.507	1.513	1.512	1.513	1.505	1.508	1.505	1.503	1.501
Weight (g)	0.364	1.322	12.577	7.268	11.468	4.725	4.128	0.097	0.287

Locations: DR—King George River, 14° 26'S, 127° 20'E; DRY, DY—Beta Creek, 14° 18'S, 127° 16'E; MF—Morellis Fox, 14° 18'S, 127° 20'E

analyses 26, 38, 45), so the identification of their analysed specimen as an indochinite is intriguing but not compelling.

Horwitz and Hudson pointed out the significance of their identification of HMg tektites in the Pilbara and Kimberley regions, thereby extending the geographic extent of this specific group from the previously limited area around the Western Australia—Northern Territory—South Australia border. My data confirm this. However, it is puzzling that no HMg australites were found in large collections from Earahcedy and Granite Peak, midway between Mount Davies and the Pilbara (Mason, 1979). I have also searched for australites and made extensive inquiries in the desert area between Mount Davies and the Kimberley. I found none, and the natives around Balgo Hills (20°07'S, 127°48'E) said that none were known in that region. These and similar gaps in australite distribution suggest an erratic and discontinuous pattern of shower or showers.

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